



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/681,399	10/08/2003	Yuanning Chen	TI-35212	7440
23494	7590	05/18/2006	EXAMINER	
TEXAS INSTRUMENTS INCORPORATED			FARAHANI, DANA	
P O BOX 655474, M/S 3999			ART UNIT	
DALLAS, TX 75265			PAPER NUMBER	

2891

DATE MAILED: 05/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary	Application No.	Applicant(s)	
	10/681,399	CHEN ET AL.	
	Examiner	Art Unit	
	Dana Farahani	2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-27 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the oxide material deposited on a side of a gate, while the side surfaces of the gate being substantially free of the oxide material does not point out if and to what degree the oxide material is on the side of the gate. The following rejections are based on a number of the outstanding claims, so far as they are understood.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the

Art Unit: 2891

reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1, 3, and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Gambino et al., hereinafter Gambino (US Patent 6,720,213), newly cited.

Gambino discloses in figures 3 and 4, forming and patterning a gate conductor (see column 5, line 20) on a semiconductor substrate, the gate including opposing side surfaces; depositing an oxide material, shown as same, over the gate as well as over the semiconductor substrate and on a side of the gate, the opposing side surfaces of the gate being substantially free of the oxide material; and forming spacers on the opposing side surfaces of the gate, the spacers contacting the opposing side surfaces of the gate substantially along the opposing side surfaces.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 12, 13, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gambino in view of Guo (US Patent 6,528,376), newly cited.

Gambino discloses the limitations in the claims, as discussed above, except for forming and etching a nitride layer over the gate and the oxide material to form the spacers. Gambino However discloses forming and etching an oxide layer to form the spacers.

Guo discloses that the spacers of a MOSFET could be either nitride or oxide (see column 10, line 67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use nitride to form the spacers of the Gambino reference since oxide and nitride spacers are equivalent in the art.

7. Claims 2, 17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gambino, and Gambino in view of Guo, as applied to claims 1 and 12 above, and further in view of Yeo et al., hereinafter Yeo (US Patent 6,955,952), newly cited.

Gambino, and Gambino in view of Guo, discloses the claimed invention, as discussed above, except for the gate being doped.

Yeo discloses FET transistors wherein their gates are doped (see col. 4, lines 58-60). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to dope the gate of the structure of the Gambino reference in order to easily adjust the resistance of the gate.

8. Claims 4-6, 14, and 15 are rejected under 35 U.S.C. 103(a) as being anticipated by Gambino, and Gambino in view of Guo, in case of claims 14 and 15, as applied to claims 1 and 12 above, and further in view of Jeng (US Patent 6,303,490), previously cited.

Gambino, and Gambino in view of Guo, discloses the claimed invention, as discussed above, except for an anisotropic Physical Vapor Deposition (PVD) which comprises one of collimated sputtering, long throw sputtering or ionized metal plasma method is used in depositing the oxide material.

Jeng discloses anisotropic ionized metal plasma sputtering method is used for deposition which gives a good surface coverage (see column 4, lines 24-28). Therefore, it would have been

Art Unit: 2891

obvious to one of ordinary skill in the art at the time of the invention to use this method to deposit the oxide layer of the Gambino reference, since the advantages of using the method, such as the advantage mentioned above is well known in the art.

9. Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being anticipated by Gambino, and Gambino in view of Guo, in case of claim 16, as applied to claims 1 and 12 above, and further in view of Hong et al., hereinafter Hong (US Patent 5,457,061), previously cited.

Gambino, and Gambino in view of Guo, discloses the limitations in these claims, as discussed above, except for the oxide material comprising one of the materials mentioned in claim 7, including SiO₂.

Hong discloses a gate oxide 36 being SiO₂ (see figure 4; and column 3, lines 42-45). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use SiO₂ as the oxide layer of the Gambino reference, since it is well known and widely used as an insulator in chip manufacturing.

Response to Arguments

10. Applicant's arguments with respect to the previously rejected have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dana Farahani whose telephone number is (571)272-1706. The examiner can normally be reached on M-F 9:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on (571)272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D. Farahani


DAVID ZARNEKE
PRIMARY EXAMINER
5/12/06